
Space Weather Forecast

Issued on Friday, 09 June 2023 at 01:22 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Chance of Moderate-class X-ray flares (R1/Minor-R2/Moderate radio blackouts). Slight chance of Minor Geomagnetic Storms.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Despite nine numbered sunspots on the visible disc solar activity has been Low over the past 24 hours, with the largest flare a moderate sized Common class flare at 08/0459 UTC from AR3327. This region remains the most magnetically complex region on the disc, and one of the largest. All remaining regions are magnetically simpler, and most smaller, with all regions showing little or no change through the period.

No CME's that are likely to be Earth directed have been observed in available coronagraph imagery.

Solar Wind / Geomagnetic Activity: The solar wind speed remained at Background levels throughout, with an early peak of 375 km/s. The north-south component of the solar wind magnetic field was small-scale and erratic, albeit with a gradual drift to become more reliably anti-aligned with Earth's field during the second half of the day. The resulting geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a daily chance of moderate solar activity. Any significant flares are most likely to originate from AR3327. The risk of flares remains steady throughout as no major new or returning regions are expected to arrive, or depart from, the visible disc.

Solar Wind / Geomagnetic Activity: No Earth directed CME's are expected to arrive. Any increase in the current Quiet conditions of geomagnetic activity will be from coronal hole sources. Slight enhancements in the solar winds are likely to arrive from late tomorrow (10th) onwards, with the solar winds becoming slightly elevated or elevated.

Geomagnetic activity is expected to remain predominantly Quiet until late tomorrow (10th). Geomagnetic activity is then expected to increase to become occasionally Unsettled with isolated Active intervals likely, these especially from late tomorrow and through day 3 (11th).

Energetic Particles / Solar Radiation: Solar radiation storms are not expected, however there is a very slight chance of reaching the S1/Minor Storm threshold should any larger X-ray flares occur.

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Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	5	20	20	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	30	30	30	30
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	5	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)